Introduction

The word factors of grammatical class, age of acquisition (AoA), frequency of occurrence, and animacy have been found to influence reaction times (RTs) to naming in normal speakers. Other studies have found that speakers with aphasia are also sensitive to such word factors by examining their error rates during naming.

While the errors made by participants with aphasia have been analyzed to gain insight into their lexical processing systems, the information that their correct responses might yield has largely been ignored. Instead, models of lexical processing developed to correct responses in undamaged systems have been used to explain lexical processing deficits in damaged systems. This assumes that normal lexical processes provide a valid model for understanding lexical breakdown following aphasia.

An alternative approach is to develop models of lexical processing for aphasia by measuring the RTs of correct responses. We investigated the visual and auditory naming performances of participants with aphasia to lexical stimuli controlled for age of acquisition, frequency of occurrence, and animacy. By examining RTs for the correct responses of speakers with aphasia, a clearer understanding of the effects of aphasia on lexical processing might be attained.

We hypothesized that (a) normal participants would respond faster to nouns vs. verbs, (b) the fastest RTs would be associated primarily with stimuli having early AoA and secondarily with those having high frequency of occurrence, and (c) no effect of animacy would be observed. We also hypothesized that these patterns would generally hold true for participants with aphasia and that deviations from the expected patterns will increase as the severity of aphasia increases.

Method

• Participants presented with 249 nouns and 88 verbs controlled for age of acquisition, frequency of occurrence, and animacy (Francis & Kucera, 1982; Druks & Masterson, 2000; Morrison, Chappell, & Ellis, 1997)
• Visual naming tasks: Line drawings of noun and verb stimuli displayed on a computer screen; participants name stimuli as quickly as possible

Results

• Participant RTs varied widely by stimulus presentation mode and grammatical class (see Table 2)
• Varying degrees of adherence to the hypothesized patterns were found for both groups
• Noun picture naming conformed most closely to the study hypotheses for both groups
• Verb picture naming was least similar between groups and conformed least to the study hypotheses
• Early AoA was most often associated with faster RTs for both groups
• The participant with the most severe aphasia conformed least to the hypothesized patterns
• Animacy had a variable influence on naming for some participants depending on the condition

Discussion

In this study, no participant conformed consistently to the expected patterns across tasks. Both groups did conform most strongly to the study hypotheses during noun picture naming.

These results suggest that naming performance should be evaluated under both visual and auditory conditions and that the word factors examined in this study need to be investigated further across different aphasia types. It may be that examination of both RTs and error responses are needed to develop appropriate models of lexical processing for individuals with aphasia. We are currently following up these findings with analysis of possible relationships between RTs and errors.